

Claims

1. A low drop-out DC voltage regulator for regulating a voltage from a DC power supply (V_{supply}) applied to a load (3) at an output of the regulator and comprising a pass device (T7) for controlling flow of current from said power supply to said load so as to control the output voltage (V_{out}) at said regulator output, and a feedback loop for controlling said pass device (T7), said feedback loop comprising a resistive feedback path (5) and a capacitive feedback path that includes a feedback capacitive element (6) in series, and comparator means responsive to signals from said feedback paths for applying to said pass device (T7) an error signal that is a function of the value of said output voltage (V_{out}) relative to a nominal value so as to control said output voltage (V_{out}),

characterised in that said comparator means comprises feedback current producing means (8-10) by maintaining a common point (7) of said resistive feedback path (5) and said capacitive feedback path (6) at a reference voltage (V_{ref}) so as to produce a feedback current flowing in said resistive feedback path (5) and in said capacitive feedback path (6) in parallel between said regulator output and said common point (7), and current comparison means (10, 11, 15) responsive to relative values of said feedback current and of a reference current ($V_{\text{ref}}/R1$) for producing said error signal.

2. A low drop-out DC voltage regulator as claimed in claim 1, wherein said feedback capacitive element (6) in series in said capacitive feedback path forms a dominant pole in said feedback loop.
3. A low drop-out DC voltage regulator as claimed in claim 1 or 2, wherein said resistive feedback path includes a feedback resistive element (5) in series,
4. A low drop-out DC voltage regulator as claimed in any preceding claim, wherein said feedback current producing means (8-10) comprises current mirror means including a first current conducting element (9) presenting a first conductive path to said feedback current from said common point (7) and a second current conducting element (10) presenting a second conductive path

for conducting a current that is substantially equal to said feedback current in said first conductive path, and a voltage amplifier (8) whose output voltage is responsive to a difference in voltage between said reference voltage (V_{ref}) and said common point (7) for controlling said feedback current flowing in said first current conducting element to maintain said common point (7) at said reference voltage (V_{ref}).

5. A low drop-out DC voltage regulator as claimed in claim 4, wherein said current comparison means (10, 11, 15) includes a source (11) of said reference current ($V_{ref}/R1$) connected in series with said second conductive path, said comparator means including control means (2) responsive to a voltage at a connection point (12) between said second conductive path and said current source for controlling a voltage applied to control said pass device.
6. A low drop-out DC voltage regulator as claimed in any preceding claim, wherein said reference current ($V_{ref}/R1$) is a function of said reference voltage (V_{ref}).